

WHAT IS CLAIMED IS:

1        1. A method for storing input groups of uncoded binary data on a storage  
2 medium, comprising:

3            receiving a plurality of uncoded data blocks in a data stream;

4            generating one corresponding encoded data block for each uncoded data  
5 block, wherein an encoded data stream obtained from concatenating successive  
6 encoded blocks includes a predetermined bit pattern comprising a plurality of bits,  
7 wherein the bit pattern always occurs within a first number of bits and two  
8 occurrences of a "1" and "0" occur within a second number of bits; and  
9            storing the encoded data stream on the storage medium.

1        2. The method of claim 1, wherein the first number is greater than the  
2 second number.

1        3. The method of claim 1, wherein the predetermined bit pattern  
2 represents a maximum amplitude peak in a constrained waveform that is guaranteed  
3 to occur within the first number of bits.

1        4. The method of claim 1, wherein the encoded data blocks are generated  
2 using an encoder table.

1        5. The method of claim 1, wherein decoding the encoded data block by  
2 determining the decoded data block corresponding to the encoded data block.

1        6. The method of claim 1, wherein the encoding function is performed by  
2 a finite state code.

1        7. The method of claim 6, wherein one encoded data block corresponds  
2 to multiple uncoded data blocks, and wherein a value of at least one adjacent block is

- 3 used to determine the uncoded data block that corresponds to the encoded data block  
4 corresponding to multiple uncoded data blocks.

1        8.     The method of claim 1, wherein the predetermined bit pattern  
2 comprises "010", each uncoded data block comprises eight bits, and each encoded  
3 data block comprises nine bits.

1        9.     The method of claim 8, wherein the first number comprises twelve and  
2 the second number comprises six.

1        10.    The method of claim 1, wherein the predetermined bit pattern  
2 comprises "010", wherein each uncoded data block comprises sixteen bits and  
3 wherein each encoded data block comprises seventeen bits.

1        11.    The method of claim 10, wherein the first number comprises twenty  
2 bits and the second number comprises fourteen bits.

1        12.    The method of claim 10, wherein a correspondence of uncoded to  
2 encoded data blocks comprises a finite state code scheme.

1        13.    The method of claim 1, wherein the predetermined bit pattern  
2 comprises "111", wherein each uncoded data block comprises nine bits and wherein  
3 each encoded data block comprises ten bits.

1        14.    The method of claim 13, wherein the first number is fourteen.

1        15.    The method of claim 1, wherein the predetermined bit pattern  
2 comprises "111", wherein each uncoded data block comprises sixteen bits, and  
3 wherein each encoded data block comprises seventeen bits.

1        16.     The method of claim 15, wherein the first number is twenty-one.

1        17.     The method of claim 15, wherein a correspondence of uncoded to  
2     encoded data blocks comprises a finite state code scheme.

1        18.     The method of claim 1, wherein the predetermined bit pattern  
2     comprises either "0100" or "0010", wherein each uncoded data block comprises nine  
3     bits and wherein each encoded data block comprises ten bits.

1        19.     The method of claim 18, wherein the first number is twelve.

1        20.     The method of claim 1, wherein the predetermined bit pattern  
2     comprises either "0100" or "0010", wherein each uncoded data block comprises  
3     sixteen bits.

1        21.     The method of claim 20, wherein each encoded data block comprises  
2     seventeen bits and wherein the first number comprises nineteen bits.

1        22.     The method of claim 20, wherein a correspondence of uncoded to  
2     encoded data blocks comprises a finite state code scheme and wherein the first  
3     number is fifteen.

1        23.     The method of claim 1, wherein the encoded data block can be used in  
2     partial response and extended partial response systems.

1        24.     The method of claim 1, wherein the predetermined bit pattern is  
2     included in one encoded data block or spans two encoded data blocks.

1        25. A system for storing input groups of uncoded binary data on a storage  
2 medium, comprising:

3              means for receiving a plurality of uncoded data blocks in a data stream;  
4              means for generating one corresponding encoded data block for each uncoded  
5 data block, wherein an encoded data stream obtained from concatenating successive  
6 encoded blocks includes a predetermined bit pattern comprising a plurality of bits,  
7 wherein the bit pattern always occurs within a first number of bits and two  
8 occurrences of a "1" and "0" occur within a second number of bits; and  
9              means for storing the encoded data stream on the storage medium.

1        26. The system of claim 25, wherein the first number is greater than the  
2 second number.

1        27. The system of claim 25, wherein the predetermined bit pattern  
2 represents a maximum amplitude peak in a constrained waveform that is guaranteed  
3 to occur within the first number of bits.

1        28. The system of claim 25, wherein the encoding function is performed  
2 by a finite state code.

1        29. The system of claim 28, wherein one encoded data block corresponds  
2 to multiple uncoded data blocks, and wherein a value of at least one adjacent block is  
3 used to determine the uncoded data block that corresponds to the encoded data block  
4 corresponding to multiple uncoded data blocks.

1        30. The system of claim 25, wherein the predetermined bit pattern  
2 comprises "010", each uncoded data block comprises eight bits, and each encoded  
3 data block comprises nine bits.

1        31.    The system of claim 25, wherein the predetermined bit pattern  
2    comprises "111", wherein each uncoded data block comprises nine bits and wherein  
3    each encoded data block comprises ten bits.

1        32.    The system of claim 25, wherein the predetermined bit pattern  
2    comprises "111", wherein each uncoded data block comprises sixteen bits, wherein  
3    each encoded data block comprises seventeen bits.

1        33.    The system of claim 25, wherein the predetermined bit pattern  
2    comprises either "0100" or "0010", wherein each uncoded data block comprises nine  
3    bits and wherein each encoded data block comprises ten bits.

1        34.    The system of claim 25, wherein the predetermined bit pattern is  
2    included in one encoded data block or spans two encoded data blocks.

1        35.    An article of manufacture including code for storing input groups of  
2    uncoded binary data on a storage medium, wherein the code is capable of causing  
3    operations comprising:  
4            receiving a plurality of uncoded data blocks in a data stream;  
5            generating one corresponding encoded data block for each uncoded data  
6    block, wherein an encoded data stream obtained from concatenating successive  
7    encoded blocks includes a predetermined bit pattern comprising a plurality of bits,  
8    wherein the bit pattern always occurs within a first number of bits and two  
9    occurrences of a "1" and "0" occur within a second number of bits; and  
10          storing the encoded data stream on the storage medium.

1        36.    The article of manufacture of claim 35, wherein the first number is  
2    greater than the second number.

1        37.    The article of manufacture of claim 35, wherein the predetermined bit  
2 pattern represents a maximum amplitude peak in a constrained waveform that is  
3 guaranteed to occur within the first number of bits.

1        38.    The article of manufacture of claim 35, wherein the encoded data  
2 blocks are generated using an encoder table.

1        39.    The article of manufacture of claim 35, wherein decoding the encoded  
2 data block by determining the decoded data block corresponding to the encoded data  
3 block.

1        40.    The article of manufacture of claim 35, wherein the encoding function  
2 is performed by a finite state code.

1        41.    The article of manufacture of claim 40, wherein one encoded data  
2 block corresponds to multiple uncoded data blocks, and wherein a value of at least  
3 one adjacent block is used to determine the uncoded data block that corresponds to  
4 the encoded data block corresponding to multiple uncoded data blocks.

1        42.    The article of manufacture of claim 35, wherein the predetermined bit  
2 pattern comprises "010", each uncoded data block comprises eight bits, and each  
3 encoded data block comprises nine bits.

1        43.    The article of manufacture of claim 42, wherein the first number  
2 comprises twelve and the second number comprises six.

1        44.    The article of manufacture of claim 35, wherein the predetermined bit  
2 pattern comprises "010", wherein each uncoded data block comprises sixteen bits and  
3 wherein each encoded data block comprises seventeen bits.

1        45.    The article of manufacture of claim 44, wherein the first number  
2    comprises twenty bits and the second number comprises fourteen bits.

1        46.    The article of manufacture of claim 44, wherein a correspondence of  
2    uncoded to encoded data blocks comprises a finite state code scheme.

1        47.    The article of manufacture of claim 35, wherein the predetermined bit  
2    pattern comprises "111", wherein each uncoded data block comprises nine bits and  
3    wherein each encoded data block comprises ten bits.

1        48.    The article of manufacture of claim 47, wherein the first number is  
2    fourteen.

1        49.    The article of manufacture of claim 35, wherein the predetermined bit  
2    pattern comprises "111", wherein each uncoded data block comprises sixteen bits,  
3    and wherein each encoded data block comprises seventeen bits.

1        50.    The article of manufacture of claim 49, wherein the first number is  
2    twenty-one.

1        51.    The article of manufacture of claim 49, wherein a correspondence of  
2    uncoded to encoded data blocks comprises a finite state code scheme.

1        52.    The article of manufacture of claim 35, wherein the predetermined bit  
2    pattern comprises either "0100" or "0010", wherein each uncoded data block  
3    comprises nine bits and wherein each encoded data block comprises ten bits.

1        53.    The article of manufacture of claim 52, wherein the first number is  
2    twelve.

1        54.     The article of manufacture of claim 35, wherein the predetermined bit  
2     pattern comprises either "0100" or "0010", wherein each uncoded data block  
3     comprises sixteen bits.

1        55.     The article of manufacture of claim 54, wherein each encoded data  
2     block comprises seventeen bits and wherein the first number comprises nineteen bits.

1        56.     The article of manufacture of claim 54, wherein a correspondence of  
2     uncoded to encoded data blocks comprises a finite state code scheme and wherein the  
3     first number is fifteen.

1        57.     The article of manufacture of claim 35, wherein the encoded data  
2     block can be used in partial response and extended partial response systems.

1        58.     The article of manufacture of claim 35, wherein the predetermined bit  
2     pattern is included in one encoded data block or spans two encoded data blocks.